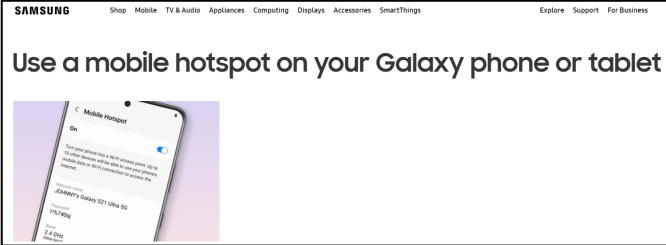


EXHIBIT 17

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Claim 1	Accused Hotspot Devices ¹
<p>[1PRE] A wireless network device, comprising:</p>	<p>The Accused Hotspot Devices, such as smartphones and tablets (including but not limited to Galaxy S21-S25 model, Galaxy Z Flip 3-6 model, Galaxy Fold 3-6 model, Galaxy Note 20 model, and Galaxy Series A model smartphones) can serve as a broadband wireless repeater when in a tethering mode.</p>  <p>See https://www.samsung.com/us/support/answer/ANS00079036/</p>
<p>[1A] a wireless transmitter that transmits wireless data through electromagnetic signals that have a bandwidth greater than or equal to 100 MHz and less than or equal to 500 MHz;</p>	<p>The Accused Hotspot Devices are configured to use both (a) WiFi 5/6/6E and (b) 5G cellular, which all have channels greater than 100 MHz and less than 500 MHz for communicating with a “ultrawideband wireless device.”</p> <p>The Accused Hotspot Devices comprise a WiFi/Bluetooth combo chip that supports the transmission of wireless data with at least WiFi5(160 MHz) or WiFi6(160 MHz). According to the IEEE 802.11 standards, the Wi-Fi generations WiFi5 (802.11ac), WiFi6 (802.11ax-2019), and WiFi6E (802.11ax-2021), all provide 160 MHz channel widths.</p> <p>For example, IEEE 802.11ax (WiFi5) allows for data transmissions over a contiguous or non-contiguous 160 MHz. bandwidth. The 160 MHz. contiguous spectrum comprises 8 channels (20 MHz) that are bonded together. The 160 MHz. non-contiguous spectrum comprises two 4 channels (20 MHz) that are bonded together and concatenated to form 160 MHz. non-contiguous spectrum. The 160 MHz. bandwidth</p>

¹ Upon information and belief, all Accused Hotspot Devices function in a substantially similar manner for the relevant accused functionality.

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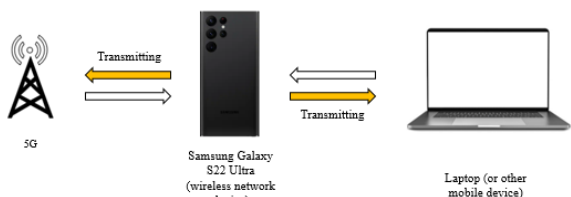
	<p>supports data rates of up to 6.93 Gbps, but does not indicate a minimum or lower bound for the data rate.</p> <p>According to the IEEE 802.11 standards, the Wi-Fi generations WiFi5, WiFi6, and WiFi6E, all provide channel widths of up to 160 MHz and maximum speed of at least 6.93 Gbps.</p> <p>The Accused Hotspot Devices comprise a mmWave antenna and tuner (e.g., transmitter or transceiver) to transmit wireless data over a 5G network. The Accused Hotspot Devices are compatible with at least one of the following cellular bands that fall at or between 100 MHz and 500 MHz:</p> <ul style="list-style-type: none"> • 5G bands: n41, n48, n78 • 5G mmWave bands: n257, n260, n261 <p>5G has various NR bands with bandwidths greater than 100 MHz and less than 500 MHz (n40, n41, n46, n48, n78, n90). Data rates for 5G can range from 10Mbps to 1,000Mbps. Data rates for 5G mmWave can reach data rates up to 10Gbps. Note actual 5G data rates are primarily dependent on telecommunication carriers.</p> 
<p>[1B] a wireless receiver that receives wireless data through electromagnetic signals that have a bandwidth greater than or equal to 100 MHz and less than or equal to 500 MHz;</p>	<p>The Accused Hotspot Devices are configured to use both (a) WiFi 5/6/6E and (b) 5G cellular, which all have channels greater than 100 MHz and less than 500 MHz for communicating with a “ultrawideband wireless device.”</p> <p>See claim element [1A] above.</p>

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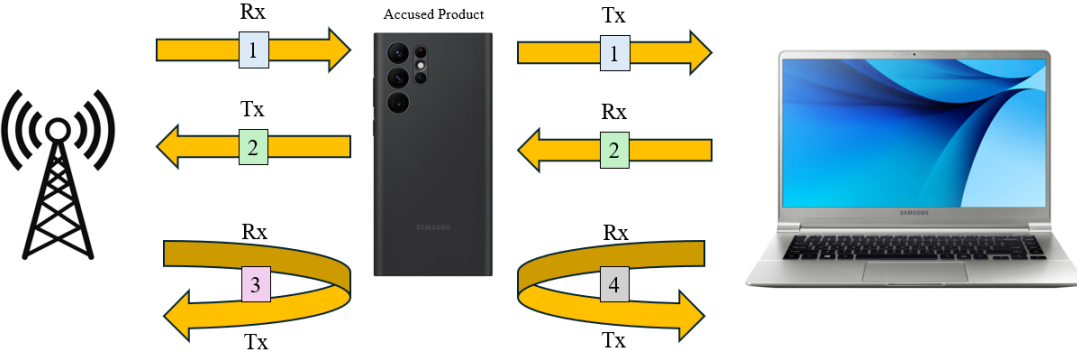
	
<p>[1C] wherein the wireless transmitter is configured for transmitting wireless data that contains information present in or determined from wireless data that has been received by the wireless receiver;</p>	<p>The Accused Hotspot Devices are configured to:</p> <ol style="list-style-type: none"> 1. receives wireless data through the 5G communication protocol and transmits the received data over the WiFi (802.11ax) communication protocol. 2. receives wireless data through the WiFi6 (802.11ax) communication protocol and transmits the received data over the 5G communication protocol. 3. receives wireless data through the 5G communication protocol and transmits information determined from the wireless data over the 5G. 4. receives wireless data through the WiFi6 (802.11ax) communication protocol and transmits information determined from the wireless data over the WiFi6 (802.11ax). <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>5G Mobile Network</p>  </div> <div style="text-align: center;"> <p>Accused Product</p>  </div> <div style="text-align: center;"> <p>WiFi Network</p>  </div> </div> 

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<p>[1D] wherein the wireless network device is configured for processing wireless data received by the wireless receiver, and</p>	<p>The Accused Hotspot Devices comprise a controller that is configurable for processing wireless data in both a Wi-Fi network (e.g., WiFi5, WiFi6, or WiFi6E) and a cellular network (e.g., 4G LTE or 5G), which are wireless networks.</p> <p>For example, the Galaxy S20 Ultra comprises, among other things, a STMicroelectronics STM32G071EB 32-bit ARM microcontroller and a Qualcomm SDX55M 5G modem. www.ifixit.com/Teardown/Samsung+Galaxy+S20+Ultra+Teardown/131607?srsId=AfmBOorbKmG1FgZYkgqQsKc3mMYaHd6vA_c9nDDoDhWlKt_IkjlHRT-t</p> <p>In another example, the Galaxy S22 Ultra comprises, among other things, a Samsung RF Transceiver S5520, a Broadcom Front-End Module AFEM-9140, a Skyworks Front-End Module SKY58083-11, a Broadcom Wi-Fi 6/6E&BT 5.0 SoC BCM4389, and a Qorvo Front-End Module QM77098. www.techinsights.com/blog/samsung-galaxy-s22-ultra-teardown</p> <p>Wi-Fi protocols, such as Wi-Fi5, Wi-Fi6 and Wi-Fi6E, use IP and/or MAC addresses to identify connected devices. See e.g., www.techtarget.com/searchnetworking/answer/What-is-the-difference-between-an-IP-address-and-a-physical-address/.</p> <p>The Accused Hotspot Devices utilize WPA2 and/or WPA3 protocols to allow for secure broadcasting of a Wi-Fi hotspot, which employs a handshake sequence that requires data processing via network information of devices requesting to join the mobile hotspot.</p> <p>https://insights.samsung.com/2022/12/16/how-to-turn-your-galaxy-smartphone-into-a-hotspot-3/</p> <p>https://en.wikipedia.org/wiki/Wi-Fi_Protected_Access</p> <p>The cellular modem in the Accused Hotspot Devices also configures the Accused Hotspot Devices for operation in a cellular network (e.g., 4G LTE or 5G).</p>
<p>[1E] wherein the wireless network <i>[device]</i> is configured for determining</p>	<p>The controller in the Accused Hotspot Devices uses, for example, the IP and/or MAC address of the connected ultrawideband wireless device to screen data received from</p>

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<p>whether any, a portion, or all information in the processed wireless data should be transmitted by the wireless transmitter,</p>	<p>the connected ultrawideband wireless device. In that connection, the controller in the Accused Hotspot Devices uses, for example, the IP and/or MAC address of the connected ultrawideband wireless device, to screen out transmissions to/from other devices.</p> <p>The Accused Hotspot Devices utilize WPA2 and/or WPA3 security protocols, which employ a handshake verification process that screens unwanted data from unauthorized devices attempting to join a WiFi mobile hotspot.</p> <p><i>See e.g., insights.samsung.com/2022/12/16/how-to-turn-your-galaxy-smartphone-into-a-hotspot-3/</i></p> <p><i>See e.g., en.wikipedia.org/wiki/Wi-Fi_Protected_Access</i></p> <p>When broadcasting a Nearby Share or WiFi mobile hotspot (utilizing WPA2 protocol), the Accused Hotspot Devices receive data from devices attempting to connect and determine which device(s) to transmit data back to.</p>
<p>[1F] wherein the wireless network device is configured for transmitting beacon frames with the wireless transmitter.</p>	<p>The Accused Hotspot Devices transmit beacon frame via both cellular (4G and 5G) and WiFi.</p> <p>Logical channels in 4G and 5G transmit beacon frames to broadcast information about the network. The logical channels with beacon frames include one or more of:</p> <ul style="list-style-type: none">• Broadcast Control Channel (BCCH)• Paging Control Channel (PCCH)• Common Control Channel (CCH)• Dedicated Control Channel (DCCH)• Dedicated Traffic Channel (DTCH) <p><i>See https://www.electronics-notes.com/articles/connectivity/5g-mobile-wireless-cellular/data-channels-physical-transport-logical.php.</i></p> <p>Beacon frames are management frames in IEEE 802.11. See https://en.wikipedia.org/wiki/Beacon_frame.</p>

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Claim 13	Accused Hotspot Devices
[13PRE] A wireless network device, comprising:	See element [1PRE] above.
[13A] a wireless transmitter that transmits wireless data through electromagnetic signals that have a bandwidth greater than or equal to 100 MHz and less than or equal to 500 MHz;	<p>The Accused Hotspot Devices are configured to transmit wireless data over Wi-Fi or cellular networks.</p> <p>The Accused Hotspot Devices comprise a WiFi/Bluetooth combo chip that supports the transmission of wireless data with at least WiFi5(160 MHz) and WiFi6(160 MHz). According to the IEEE 802.11 standards, the Wi-Fi generations WiFi5 (802.11ac), WiFi6 (802.11ax-2019), and WiFi6E (802.11ax-2021), all provide 160 MHz channel widths.</p> <p>The Accused Hotspot Devices comprise a mmWave antenna and tuner (e.g., transmitter or transceiver) to transmit wireless data over a 5G network. The Accused Hotspot Devices are compatible with at least one of the following cellular bands that fall at or between 100 MHz and 500 MHz:</p> <ul style="list-style-type: none"> • 5G bands: n41, n48, n78 • 5G mmWave bands: n257, n260, n261 <p>5G has various NR bands with bandwidths greater than 100 MHz and less than 500 MHz (n40, n41, n46, n48, n78, n90)</p>  <p>The diagram illustrates a communication flow. On the left is a 5G tower icon labeled '5G'. A yellow arrow labeled 'Transmitting' points from the tower to a Samsung Galaxy S22 Ultra smartphone in the center, which is labeled 'Samsung Galaxy S22 Ultra (wireless network device)'. Another yellow arrow labeled 'Transmitting' points from the smartphone to a laptop on the right, which is labeled 'Laptop (or other mobile device)'.</p>

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<p>[13B] a wireless receiver that receives wireless data through electromagnetic signals that have a bandwidth greater than or equal to 100 MHz and less than or equal to 500 MHz;</p>	<p>The Accused Hotspot Devices are all configured to use both (a) WiFi 5/6/6E and (b) 5G cellular, which all have channels greater than 100 MHz and less than 500 MHz for communicating with a “ultrawideband wireless device.”</p> <p>The Accused Hotspot Devices comprise a WiFi/Bluetooth combo chip that supports the reception of wireless data with at least WiFi5(160 MHz) and WiFi6(160 MHz). According to the IEEE 802.11 standards, the Wi-Fi generations WiFi5 (802.11ac), WiFi6 (802.11ax-2019), and WiFi6E (802.11ax-2021), all provide 160 MHz channel widths.</p> <p>The Accused Hotspot Devices comprise a mmWave antenna and tuner (e.g., receiver or transceiver) to receive wireless data over a 5G network.</p> <p>5G has various NR bands with bandwidths greater than 100 MHz and less than 500 MHz (n40, n41, n46, n48, n78, n90)</p> 
<p>[13C] wherein the wireless transmitter is configured for transmitting wireless data that contains information present in or determined from wireless data that has been received by the wireless receiver;</p>	<p>The Accused Hotspot Devices are configured to:</p> <ol style="list-style-type: none"> 1. receives wireless data through the 5G communication protocol and transmits the received data over the WiFi6 (802.11ax) communication protocol. 2. receives wireless data through the WiFi6 (802.11ax) communication protocol and transmits the received data over the 5G communication protocol. 3. receives wireless data through the 5G communication protocol and transmits information determined from the wireless data over the 5G.

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	<p>4. receives wireless data through the WiFi6 (802.11ax) communication protocol and transmits information determined from the wireless data over the WiFi6 (802.11ax).</p> <p>5G Mobile Network WiFi Network</p>
<p>[13D] wherein the wireless network device is configured for processing wireless data received by the wireless receiver,</p>	<p>The Accused Hotspot Devices comprise a controller made up of a main processor coupled to a 5G transceiver and a Wi-Fi chip, configured to process data received by the wireless receiver.</p> <p>See claim element [1D] above.</p>
<p>[13E] wherein the wireless network device is configured for determining whether any, a portion, or all [information] in the processed wireless data should be transmitted by the wireless transmitter;</p>	<p>The “processed wireless data” refers to the wireless data received by the wireless receiver in element [13D]. It is the essence of, and an inherent operation of, a tethering device to transmit to the tethered device some or all of the information that it receives.</p> <p>See claim element [1E] above.</p>
<p>[13F] wherein the wireless transmitter is configured for transmitting wireless data through OFDM electromagnetic signals that have a bandwidth greater than or</p>	<p>The Accused Hotspot Devices comprise a 5G modem, 5G transceiver, and a Wi-Fi/BT combo chip, configured to transmit wireless data according to the 5G standard that modulates signal transmissions in orthogonal frequency division multiplexing (OFDM) and WiFi6 that modulates signals in High-Efficiency OFDM.</p> <p>See https://www.cisco.com/c/en/us/products/wireless/what-is-ofdma.html</p>

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equal to 100 MHz and less than or equal to 500 MHz; and	See https://www.5gtechnologyworld.com/ofdma-improves-spectrum-use-in-wi-fi-6/ See claim element [13B] above.
[13G] wherein the wireless receiver is configured for receiving wireless data through OFDM electromagnetic signals that have a bandwidth greater than or equal to 100 MHz and less than or equal to 500 MHz.	The Accused Hotspot Devices comprise a 5G modem, 5G transceiver, and a Wi-Fi/BT combo chip, configured to receive wireless data according to the 5G and WiFi6 standards, for modulated signals in OFDM and HE-OFDM. See https://www.cisco.com/c/en/us/products/wireless/what-is-ofdma.html See https://www.5gtechnologyworld.com/ofdma-improves-spectrum-use-in-wi-fi-6/ See claim element [13B] above.
Claim 16	Accused Hotspot Devices
[16PRE] A wireless network device, comprising:	See claim element [13PRE] above.
[16A] a wireless transmitter that transmits wireless data through electromagnetic signals that have a bandwidth greater than or equal to 100 MHz and less than or equal to 500 MHz;	See claim element [13A] above.
[16[B] a wireless receiver that receives wireless data through electromagnetic signals that have a <i>[bandwidth]</i> greater than or equal to 100 MHz and less than or equal to 500 MHz;	See claim element [13B] above.
[16C] wherein the wireless transmitter is configured for transmitting wireless data that contains information present in or determined from wireless data that has been received by the wireless receiver;	See claim element [13C] above.

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<p>[16D] wherein the wireless network device is configured for processing wireless data received by the wireless receiver,</p> <p>wherein the wireless network device is configured for determining whether any, a portion, or all information in the process wireless data should be transmitted by the wireless transmitter;</p>	<p>See claim element [13D] above.</p>
<p>[16E] wherein the wireless network device is configured for determining whether any, a portion, or all information in the processed wireless data should be transmitted by the wireless transmitter;</p>	<p>See claim element [13E] above.</p>
<p>[16F] wherein the wireless transmitter is configured for transmitting wireless data through electromagnetic signals that have a bandwidth greater than or equal to 100 MHz and less than or equal to 500 MHz at a data rate greater than or equal to 100 megabits per second and less than or equal to 480 megabits per second; and</p>	<p>The Accused Hotspot Devices are all configured to use both (a) WiFi 5/6/6E and (b) 5G cellular, which all have channels greater than 100 MHz and less than 500 MHz for communicating with a “ultrawideband wireless device.”</p> <p><u>Wi-Fi:</u></p> <p>The Accused Hotspot Devices comprise a WiFi/Bluetooth combo chip that supports the transmission of wireless data with at least WiFi5(160 MHz) and WiFi6(160 MHz). According to the IEEE 802.11 standards, the Wi-Fi generations WiFi5 (802.11ac), WiFi6 (802.11ax-2019), and WiFi6E (802.11ax-2021), all provide 160 MHz channel widths.</p> <p>For example, IEEE 802.11ax (WiFi5) allows for data transmissions over a contiguous or non-contiguous 160 MHz. bandwidth. The 160 MHz. contiguous spectrum comprises 8 channels (20 MHz) that are bonded together. The 160 MHz. non-contiguous spectrum comprises two 4 channels (20 MHz) that are bonded together and concatenated to form 160 MHz. non-contiguous spectrum. The 160 MHz. bandwidth</p>

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	<p>supports data rates of up to 6.93 Gbps, but does not indicate a minimum or lower bound for the data rate.</p> <p><u>5G:</u></p> <p>The Accused Hotspot Devices are compatible with at least one of the following cellular 5G bands that fall at or between 100 MHz and 500 MHz:</p> <ul style="list-style-type: none">• 5G bands: n41, n48, n78• 5G mmWave bands: n257, n260, n261 <p>5G has various NR bands with bandwidths greater than 100 MHz and less than 500 MHz (n40, n41, n46, n48, n78, n90). Data rates for 5G can range from 10Mbps to 1,000Mbps. Data rates for 5G mmWave can reach data rates up to 10Gbps. Note actual 5G data rates are primarily dependent on telecommunication carriers.</p>
<p>[16G] wherein the wireless receiver is configured for receiving wireless data [through electromagnetic] signals that have a bandwidth greater than or equal to 100 MHz and less than or equal to 500 MHz at a data rate greater than or equal to 100 megabits per second and less than or equal to 480 megabits per second.</p>	<p>The Accused Hotspot Devices comprise a 5G modem, 5G transceiver, and a Wi-Fi/BT combo chip, configured to receive wireless data according to the 5G standard and WiFi6 (IEEE 802.11ax).</p>